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The NATIONAL HORTICULTURAL MAGAZINE



JULY 1928

The American Horticultural Society

A Union of The National Horticultural Society and The American Horticultural Society, at Washington, D. C. Devoted to the popularizing of all phases of Horticulture: Ornamental Gardening, including Landscape Gardening and Amateur Flower Gardening; Professional Flower Gardening and Floriculture; Vegetable Gardening; Fruit Growing and all activities allied with Horticulture.

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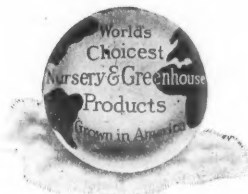
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The National Horticultural Magazine

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SHERMAN R. DUFFY, BERNARD H. LANE, J. MARION SHULL, HAMILTON TRAUB,
Contributing Editors

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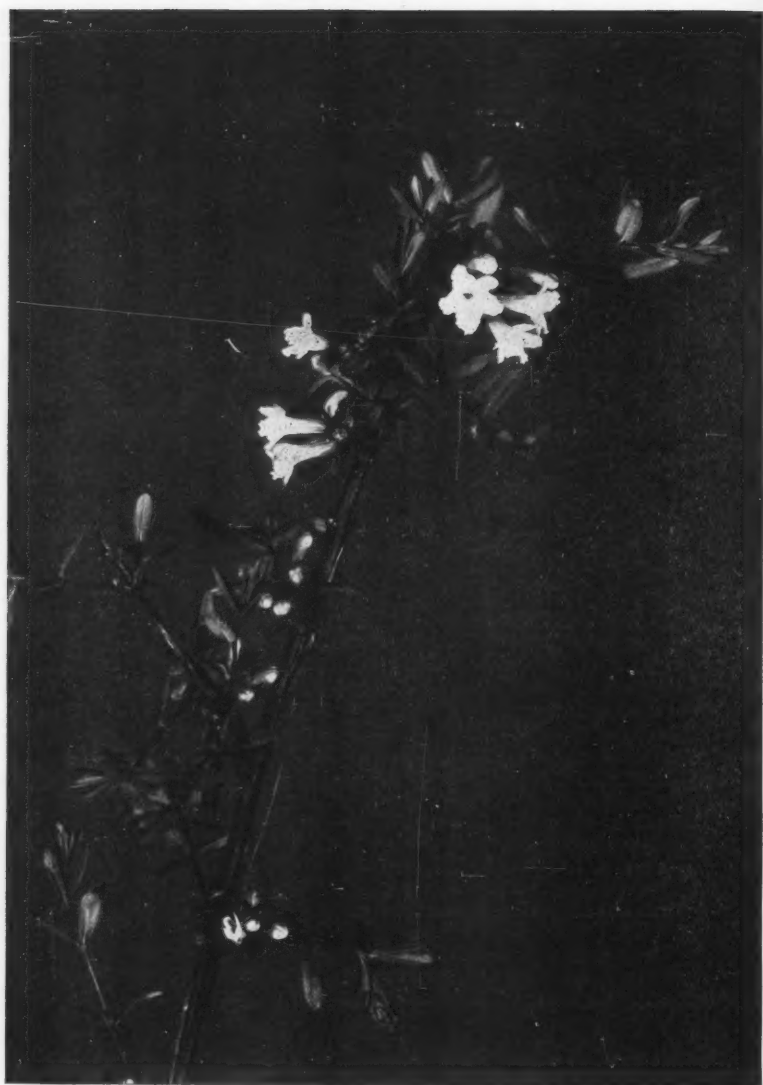
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American gardeners are much interested in the announced intention of M. Henri Correvon to publish an English edition of his book "Les plantes des montagnes et des rochers," under the title "Plants of mountain and rock," provided he can obtain enough subscriptions to insure the success of the undertaking. The French edition has been called "the Bible of the alpine gardener," and an English edition will make its wealth of information available to many others interested in this fascinating phase of modern gardening. The new edition will contain much additional information acquired since the original was published in 1914. The price is to be \$5.00, post free, which, we understand, is not to be paid in advance, but subscriptions should be sent to M. Correvon at Floraire, Chêne-Bourg, near Geneva, Switzerland.

Our society is fortunate in having shared in this project through Mr. Lane's fine translations of the chapters on Hardy Cacti and Terrestrial Orchids.

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Lilian A. Guernsey

Lonicera thibetica
(U. S. D. A.—S. P. I.—40690)

[See page 111]

Shrubs for Birds and Autumn Beauty

By MARY JUDSON AVERETT

The planting here described flourishes in northern New Jersey, on the southeast slope of one of the Watchung Mountains, where it provides a screen from the road and a frame for a small lawn. Its material was selected to attract birds, to reach its climax of beauty in the autumn, and to blend with the forest on the steep hill behind it; a forest of beech, oak, and hickory over dogwoods and viburnums. Though no display of bloom was planned, certain groups are spectacular in their seasons. Native species outnumber the exotic, the viburnums and the dogwoods leading, with the result that the planting as a whole comes into leaf later than the more usual groupings of spiraeas, weigelas, and loniceras. On a scorching summer day this open, green-walled lawn, shadowed somewhat by an old apple tree and a straight young beech, is a refuge from the drooping herbaceous garden, welcome, indeed, to the gardener, who, wearied with staking and watering, looks gratefully upon the self-reliant shrubs upheld by their own backbones of woody tissue.

A hedge of barberry (*Berberis thunbergii*) encloses the whole tract. It is the fashion now among some landscape architects to deery this useful plant as commonplace. Certainly it grows everywhere and self-sows with tireless energy, but just as certainly it supplies a charm of its own in all seasons, a profusion of small, fragrant, creamy bells almost hidden under the young leaves in spring, a handsome and enduring green in summer, a gorgeous band of color in the fall. In winter its picturesque twigs, when kept in water in a sunny window, will cheerfully put forth leaves and blossoms, very delicate in contrast to the thorny stems. Besides furnishing color for Christmas wreaths and winter bouquets, its persistent berries feed multi-

tudes of birds, especially during the spring migration when the impatient hurry into a world not yet quite awake. Every season some passerby stops to inquire the variety of this hedge, saying that it fruits more heavily than is common. The plants were raised from the seed of the most prolific specimens on a large Virginia estate, but it hardly seems that this one generation of selection could produce such results; more likely that the soil and situation happen to be particularly suitable.

Of four viburnums, the high-bush cranberry (*V. opulus*) is by far the most conspicuous. It sends up from its base strong, somewhat arching canes which fork and bear near their ends short, twisting twigs, light buff in color. Its leaf has three pointed lobes, each point terminating a strongly marked vein. In late May and early June it produces showy white flower clusters, large, round, flat, with a central area of small, fertile blossoms and an encircling ring of large sterile ones. By September, from its eight-foot top to its ground-sweeping lower branches, it is covered with loose-hung clusters of translucent, ruby-red berries that show to great advantage against the foliage which at this season is suffused with that blackish red common to oak leaves in November. They cling to the bush throughout the winter, retaining their color but gradually losing juice. Birds eat them sparingly if nothing better offers, but when a March blizzard buries the ground deep in snow, pheasants visit these viburnums regularly, even jumping to reach high-hung bunches. In dry years aphids often spoil the beauty of the leaves but nothing interferes with fruiting. *Viburnum opulus* can be confidently depended upon to decorate its own corner lavishly from September until growth starts again in the spring.

The nanny-berry (*V. lentago*) and

the withe-rod (*V. cassinoides*) have many points of similarity: both have smooth, glossy, pointed leaves, bronze as any copper beech when unfolding from the bud; both bear abundantly cymes of small, greenish white flowers in early summer; and both have ornamental berries of green and salmon and pink and red and blue-black, all colors occurring at the same time in a single cluster. The nanny-berry tends to take the form of small tree with long, strong, straight, upright branches, much sought in days gone by for whipstocks. It grows rapidly, with healthy vigor, to a height of fifteen or even twenty feet. The withe-rod, also vertical in line, is of lower stature, slower growth, shrub-like habit, and later season. Its more compact form gives a finer mass of foliage. The leaf of *V. dentatum*, as the name indicates, has a coarsely toothed margin with conspicuous, straight veins. It grows almost as tall as nanny-berry but has a wider spread and a more graceful curving spray. It bears flowers of the same general appearance. Since the pedicels are short and stiff, the black fruit is held upright. Not one of these three viburnums is ever seen here in its full fruiting beauty. Small flocks of robins and large ones of grackles and of starlings, together with numerous individuals of thrashers and cat-birds, strip the bushes clean long before maturity.

Three specimens of flowering dogwood (*Cornus florida*) have been planted among the lower growing things. No comment need be made on the beauty of its horizontal drifts of white bloom and of the warm reds of its autumn foliage, so sharply pointed up by scarlet fruit. Less often noted is the attractiveness of its unique framework which winter emphasizes. No other deciduous tree so persistently turns its buds upward, nor brings all on a given branch so nearly into the same plane. A small spray suggests a hand with fingers turned up to balance a tray after the fashion of waiters in a dining car. The flat top supported

by a curving main limb, like a shelf and bracket motif, is repeated over and over around the tree at different levels, with an effect of tiers as definite as those of a fir tree, but developed in line rather than mass. Such a trim and orderly arrangement is particularly pleasing above hedge-like thickets of symphoricarpus.

Two red-barked dogwoods (*C. alba sibirica* and *C. stolonifera*) with the gold-barked one (*C. stolonifera aurea*) were grouped near the beech tree for winter color, and a startling patch they make this morning, February nineteenth, with their red and gold and grey against the new fallen snow. The branches of *C. alba sibirica* show the most brilliant color and retain it to a greater age, but by cutting back some of the oldest branches to two feet every year, *C. stolonifera* can be kept covered with young growth which will take on satisfactory winter color. The flowers of all three are small greenish white, produced in cymes about two inches across; the fruit, said to be white, in this planting is mantled with dull, metallic blue, and seems not to attract birds. Less well known is the cornelian cherry (*C. mas*), a little tree with the characteristic cornus leaf, the veins converging at both base and apex, which it distributes with economy about its few branches. It grows with exasperating slowness; planted with the rest in 1916, it bore its first fruit ten years later. It blooms in early spring, before the leaves come, bearing its small yellow flowers in loose clusters close to the branches and in an abundance not to be expected from its sparse foliage. The fruit is a longish scarlet drupe, almost as large as an olive, which dangles from a thread-like stem and glistens like a Christmas tree ornament. Though the bloom comes in clusters, only one drupe to a cluster has been set in its two fruiting seasons here, and these the birds take with the promptness of knowing reapers gathering in their own.

Growing with the cornelian cherry, an accidental but happy combination,

are the spice bushes (*Benzoïn aestivale*). These are shrubs of erect and vigorous habit. They make spongy masses of fibrous roots that would apparently starve any neighboring vegetation, but beneath them a planting of choice Leedsii daffodils not only has thriven for four years but has enjoyed an immunity from the sapping activities of moles which have damaged a nearby bed. One wonders if this be fortuitous or if such roots really make tunnelling difficult for these pests. In the woods the spice bush bears in late August a full crop of bright red berries, but no single one has ever decorated these cultivated plants. Gray says they are polygamous-dioecious, but in this instance it appears that only staminate flowers are produced, for they do flower profusely. Consolation for the absence of fruit may be found in the fact that the staminate flowers are supposed to have more brilliant color than the pistillate ones.

The black alder (*Ilex verticillata*) also involves the lottery of staminate and pistillate flowers. The dozen plants put in proved, after five years of waiting, to be equally divided as to sex. Every year the close-set, stemless berries ripen to scarlet on the almost black stems in such quantity that the color glows even at a distance. They were chosen as a bait for cedar waxwings, and as such have succeeded beyond expectation. Besides this they supply the very best red berry for Christmas wreaths, though experience has taught that fruit wanted for holiday purposes must be gathered early and stored in a cold place, for sometimes during November a cloud of predatory starlings will surely appear and rob these bushes first of all. The black alder is of slow growth, among the latest of all shrubs to leaf out in the spring, and of little value for its tiny whitish flowers, but the waxwings and the gay winter bouquets more than justify its retention in the garden.

Only three *Loniceras* are used here. Two of these, *Lonicera maackii* and its variety *podocarpa*, have almost identi-

cal habits. They throw strong arching stems as many as eight or ten from a single base, some of which achieve a diameter of two inches or more and a height of twelve or fifteen feet without suggesting tree form. The variety *podocarpa* grown as a specimen has a spread of more than twenty feet, sweeping the ground in wide circumference unless heavily pruned. The spray develops a symmetry as perfectly balanced as in the frond of the common brake; when its buds, arranged pair opposite pair, release their white flowers, similar in size and shape to the roadside honeysuckle, this plant is worth going far to see. It comes into leaf among the earliest, blooms in late May and early June, and is loaded with small, translucent, yellowish-red berries from September until hard freezing weather. The birds find these berries very palatable but the crop is usually larger than they can dispose of unless other fruit is scarce. Of the two the variety *podocarpa* is better because of its more luxuriant growth, darker fruit and foliage, and later fruiting season.

Lonicera syringantha, the third of the genus, makes a low ragged ball of a bush, sparsely set with small, narrow leaves, untidy because its tips frequently winter kill like those of *Spiraea thunbergii*, but when it opens its little lavender blossoms it fills the air with the fragrance of heliotrope. It blooms along in a scattered way through many weeks, and as long as there is a blossom the breeze will carry its delightful odor to all parts of the garden and into the windows at night to bless the dreams of the one who, pardoning its shabby appearance, gives it space. Small, early bulbs, scilla, chianodoxa, and the like, should do well in its light shadows. It sets an orange berry, which like the rest of its visible parts is of no moment. Its jewel is its fragrance.

Two little thorn trees occupy opposing curves in the foreground. Both came from the nursery labelled *Crataegus crus-galli*, but one blooms a good two weeks later than the other and has

darker fruit. With their long smooth thorns and their stiff angular branches they trace patterns of infinite variety against the winter sky. After they are in full leaf they produce loose bunches of white flowers, as large as those of a flowering crab but too hidden by the handsome foliage to attract much attention at a distance. The dangling red fruit is more showy. Thrashers and cat-birds may be seen in the branches at all hours of the day and until dusk shuts down. The old birds often gather the small thorn-apples to feed to the young ones, though at this season the young are equal to the parents in size.

There is one other small tree, the shad-bush (*Amelanchier canadensis*) which, after the pussy willow, is the most spring-like of all trees and shrubs. A dense, silky, silvery down covers all the young leaves and stems, making them as frostily decorative as the racemes of white flowers. As to the fruit, Keeler says it "has been preempted by the birds for ages and feeble human efforts to secure it have been outclassed from the first. It seems quite unnecessary to descant upon the delicacy of its flavor; it is so antecedently improbable that ordinary mortals should ever have an opportunity to enjoy it."

The familiar snowberry and its less common relative, the Indian currant (*Symphoricarpos racemosus* and *S. vulgaris*) make lovely foreground shrubs; they rarely exceed four feet in height, sucker freely, making an impenetrable thicket, and by the curve of their slender stems, carry the bank of leafage quite down to the grass. The Indian currant sends out runners at the level of the ground in a flat round green mat, looking like some pleasant vine covering the earth. These runners root at every joint and send up new stems from most of them. In the fall coral and crimson berries line the underside of the stems for ten or fifteen inches from their tips and the leaves turn to the upper side in pairs, recalling, in spite of their small size,

gulls' wings stretched skyward as the birds drop to the sea. Among these ornamentals which have no food value for birds is *Callicarpa japonica*, a thinly clad bush, quite inconspicuous until late October or early November, when it drops its yellowing leaves and uncovers its grey-brown stems all be-decked at the nodes with lavender and purple berries, very small and shining, on short, slender pedicels. Outside they gather about them an Indian summer haze; when cut and thrust into a vase with mauve-pink single chrysanthemums, they carry into the house that same atmospheric purple. They must be cut before a hard freeze, and will keep their color all winter, though they will shrivel if used without water.

In a deep bay in the planting, far enough from the house for details to go unnoticed, the prairie rose (*Rosa setigera*) pushes its twenty-foot canes over the highbush cranberry, up into the flowering dogwoods, through the spicebush and black alder, with never a pruning knife to spoil its wild and winsome ways. In the spring sprays, starting from the axils of the leaves, reach a length of eighteen to thirty-six inches before the flowers at their ends begin to open. As many as twenty-five buds make up a single terminal cluster, and since only two or three in a cluster bloom at the same time, the display extends through weeks. Nearly all of July this bay glows with the pink of this single rose, dark in the buds and newly-opened blossoms, pale in the older ones. When the petals have finished their signal task, they drop neatly away leaving only a short tassel of stamens at the top of the promising ovary, so that sprays cut for the house remain sightly and in good condition for five or six days. The fertility of this rose is amazing: every flower appears to leave behind it a little rose-apple, small and green at first, waxing greater in size and importance as the summer wanes. Autumn finds them all painted in tones of dull orange and red. An armful in a glazed brown crock on the hearth makes a good sub-

stitute for a wood fire when the October day is warm. During mid-winter they set a bountiful table for the birds. Often the skins are deftly slit, the pulp and seed devoured, and the hollow shells left upright on their stems. Then a late sun behind them will illuminate them like little street lamps, early lighted against the coming of the winter night.

Admitted for its fragrance, the sweet pepper bush (*Clethra alnifolia*) has been a surprise. In the woods a tallish, leggy, top-heavy bush, it has suckered so freely here that it forms a solid wall of green over six feet high. Even the small shoots, hardly eighteen inches tall, bloom well. Its habit is undeniably stiff, but it has large bright green leaves which turn sunny yellow in the fall and lovely spikes of cream-white flowers which exhale a perfume spicy as that of carnations though not at all like it. On August nights when *Clethra* blooms in the shrubbery and nicotiana opens in the border by the porch, thanks should be given to the

gods for the sense of smell. But *clethra*'s biggest surprise is that it helps fill the birds' larder. Its small seeds, dry, hard, yellowish, lack both succulence and color, yet flocks of sparrowy birds haunt its vicinity. Juncos, purple finches, red polls, fox sparrows, white throats feed beneath it, while the tree sparrows actually shake the racemes by the tips to scatter seed on the snow below. Not only does this planting supply bird food, unplanned displays of bloom, glory of autumn color, but it abounds with protected nesting sites that are greatly appreciated. Every year finds nesting here robins, bluebirds, wrens, cat-birds, brown thrashers, song sparrows, chipping sparrows, and chewinks. On occasions orchard orioles Baltimore orioles, and red-eyed vireos have hung their grey cradles from the apple trees, and even the proud and haughty scarlet tanager comes to bathe and drink at the basin set out for the comfort of his tribe.

Chatham, N. J.



Michael Carron

Iris persica

[See page 110]

The Terrestrial Orchids

By H. CORREVON

From "Les plantes des montagnes et des rochers," Geneva, 1914; translated by Bernard H. Lane; published by permission of M. Correvon.

Modest and without pretense, the orchids haunt our meadows, woods, and vales. They appear in the spring months and announce the summer. They bear their flowers in erect spikes, except those that present themselves in the elegant form of the Venus's slipper, whose stalk is one or two flowered. One finds them in certain meadows, in certain woods, on certain slopes, for they do not grow everywhere. Poor soils and lime are especially favorable for them, and as soon as the farmer takes it into his head to manure the ground the orchids disappear.

The family to which these plants belong is one of the most distinguished of the vegetable world. It is also one of the most numerous, for at the present moment more than 10,000 species of orchids are known. Their structure is very peculiar—stem none or annual in the terrestrial species, leaves flat, flowers of variable form but always made up of six segments—three external, which correspond to the sepals of dicotyledons, and three internal, which correspond to the petals; the whole is called, not a corolla but a perianth.

Now, the vegetative habits of these plants are very curious. They are divided into three groups. First are the saprophytes, which lack chlorophyll and leaves and are nourished by the organic materials contained in the humus. Their root system is either a curious rhizome or subterranean branch, which does not put out true roots but whose whole surface is of a nature to absorb water and nutritive material, after the fashion of rootlets (*Epipogon*, *Corallorhiza*); or an agglomeration of numerous roots interlaced in a compact stock (*Neottia*, *Limodorum*).

In the second place there are the epiphytes, which grow on the branches of trees in warm countries or in the fissures of rocks. Their roots do not have the same rôle to play as those of other plants: their functions are to attach the plant to the wood or the rock, to fix it in the interstices of the trees or the stones, and to breathe in the air or the moisture.

In the third place are the terrestrial orchids, whose roots and leafy organs absorb from the soil or the air the water and the mineral elements which the plant needs for its development. Their root system consists either of a rhizome (*Goodyera*) or of simple branching roots (*Listera*), or finally of tubers which form reservoirs in which are stored the nutritive materials, all life being concentrated, during the period of dormancy, in this one organ, a bud destined to conserve the plant for the following year. (The tuber of the orchids is palmate or entire and represents the curious phenomenon of being generally in a double stage. There is the old tuber, which withers and blackens in proportion as it gives its life to the stalk and spike and finally disappears, and there is the new one, which carries the germ of life and of the plant for the next year. Among the palmate species the tuber takes the form of a man's hand, with four or five digits, which has given rise to many superstitious legends. This tuber is very persistent, and a case is cited (Lyon horticoles, Nov. 30, 1896) where such tubers, forgotten in a box for three months and a half, had lived perfectly and bloomed the following year.)

As soon as the period of vegetation returns this tuber pushes up a germ that stretches out toward the light in a long whitish bud, which immediately

puts forth, above the tuber, a crown of very fragile and delicate roots which should not be cut or bruised. Then the stalk rises, nourished by the tuber and the roots; the leaves, then the flower spike are developed, and the plant enters upon its epoch of glorious activity. There are chapters and chapters to write on the life of the orchids—on the strange, marvelous law which governs their cross fertilization by means of insects; but the scope of this work does not permit it, and we refer our readers to the volume which we have published on this subject and which is unfortunately now almost exhausted but which, having been widely distributed, should be found in many libraries.

The acclimatization and culture of the outdoor orchids is a modern activity of the world of horticulture; it has no history. It is necessary, however, to except from this statement the glorious *Cypripediums*, which were long ago introduced into gardens. I saw in my childhood the beautiful flowering tufts of *Cypripedium spectabile* at the home of M. Ch. Clément at Fleurier, in the Neuchâtel Mountains; and later I admired the English woods adorned with *C. calceolus*, *macranthum*, and *spectabile*. And I have seen the slopes of Warley, Leonardslee, Southlodge, and Friar Park covered with these superb princesses. I have also had the privilege of admiring, at the royal palace of Windsor, at Wisley, at Hillbrook Place, at Wennington Hall, at Edinburgh collections of these *Cypripediums* and of many others displaying themselves in the woods or the bog garden, or even in the alpine garden.

The northern hemisphere offers us many *Cypripediums* with which we adorn our rocks and gardens. The Himalayas, China, Japan, Siberia, the Ural, central and southern Europe and North America have furnished their quota of species. At Floraire, where we have prepared, in the lath house and elsewhere, special beds for these elegant forms, we grow with success

the greater part of the species that have been introduced.

[The lath house, which M. Correvois calls "umbrosum," is a summer structure with flat roof and sides made of narrow strips spaced their own width apart.—B. H. L.]

Europe offers us *C. calceolus*, *guttatum*, *macranthum*, and *ventricosum*. The first has the perianth dark brown with yellow slipper; it is found in certain mountainous regions of central and southern Europe, but it is becoming very rare in Switzerland. This species has been cultivated in England, according to Paxton, since time immemorial. A form called *C. helveticum*, which we do not know in Switzerland, was introduced in 1828. *C. guttatum* has single or twin flowers, with perianth greenish rose-purple and slipper white spotted with rose; it is 20-30 centimeters high and grows in the sphagnum bogs of the Ural, in the Siberian mountains, and in Canada. Its culture is the most difficult of all, and I must confess here that I have never seen it flower with me. But I have seen it in Germany, England, and Holland, though always slender and of a puny aspect. The Gardeners' Magazine (Feb. 11, 1888) has given its culture and the author asserts that it will thrive as well as ordinary *Cypripediums*. It demands a very porous, well-drained soil, composed by thirds of sphagnum, loam, and peat soil, and should be handled in a cold frame, though it may be hardy. *C. macranthum* is above all Siberian but is nevertheless found in European Russia, in the environs of Khasan and in the Ukraine. It is the most brilliantly colored of all the hardy *Cypripediums*. Its flower is large (stalk 20-30 cm.), with outer segments of a beautiful carmine-rose and slippers of a bright carmine veined with black at the tip; April-May.

C. ventricosum closely resembles it, but the flower is larger, with outer segments narrow and of a more intense and more brilliant coloring. It

is found in Siberia and comes, by way of the Ural, as far as the center of Russia.

The three last-named species are native to Siberia, whence they have spread to Russia. Some years ago the famous establishment of Messrs. Regel & Kesselring, at St. Petersburg (destroyed by the Bolsheviks), presented to the garden at Flourens the true *C. ventricosum* and the new *C. mandschuricum*, both of Manchurian origin. There is no doubt that China, which has now opened herself to western civilization, will offer us new hardy Cypripediums.

Japan has given us the very curious *C. japonicum*, which I have seen blooming at Kew and Friar Park but which, for my part, I have never succeeded in growing. The flower, with green perianth dotted with purple, is not striking, but its foliage is extraordinary, for it is like its compatriot *Ginkgo biloba*. The leaves are stemless, placed opposite each other at midheight of the stalk (20–30 cm.), and their clear green blade is broad, spread out in a fan, strongly plaited, sharply cut as with scissors, which gives it a bizarre form. Originating in the wooded regions of the environs of Yeddo, this plant demands a very porous soil, half shade, and moisture; it flowers in May and June.

Yunnan (southern China), which is the home of the most marvelous hardy and alpine plants, has given us *C. luteum*, with flowers of a very beautiful yellow dotted with carmine; stalk of 30 cm.; hairy, with abundant leaves.

[Since I published this chapter in 1914 my late friend, Reginald Farrer, has found in the high regions of Yunnan or Tibet and other botanists have found in North China marvelous new Cypripediums. Let us remember their names: *C. debile*, *franchetti*, *himalaicum*, *speciosum*, and *tibeticum*. These plants will be described in my book on mountain plants.—H. C.]

North America has given us a rich collection of outdoor Cypripediums.

From Canada and the northern United States we have the very beautiful *C. spectabile*, with rosy-white segments and bright-rose slipper, the flowers arranged one or two on stalks of 40–50 cm. It has been cultivated for more than a century and is widely distributed, owing to its easy culture. It is from the same regions that we have *C. pubescens*, which is the American *calceolus*, distinct from ours by its great hairiness and its slightly smaller flowers, arranged by twos and threes on stalks of 30–40 cm. The same regions give us *C. acaule*, with solitary flowers on a short stem (5–10 cm.), with perianth bronze-green veined with brown, pointed with carmine at its tips, and a large rosy-white slipper veined with carmine. *C. arietinum*, with stalks of 25–30 cm., bears one to three flowers resembling those of *calceolus* but smaller with white slipper veined with purple—a rare and delicate plant which we grow fairly well in the lath house. *C. californicum* is a much finer *calceolus*, more delicate and smaller in all its parts, with the outer divisions of the perianth of a clear brown and the slipper rosy white. This species goes in the lath house but requires a dry situation and good drainage. *C. candidum* has a single-flowered stalk, 25–30 cm., outer segments short, green striped with chocolate-brown, and a globe-shaped slipper of a beautiful white outside, rose within. *C. fasciculatum* has a slender stalk bearing two leaves and two to five small flowers of a greenish yellow striped with brown, forming a bouquet at the top of the stem. It needs the tourbière and half shade.

[M. Correvon elsewhere describes his "tourbière" as a long bed drained by a layer of pebbles 30 cm. thick, above which is a layer of moss, then 50 cm. of acid soil composed of one-third each of turf, sphagnum, and leaf mold. This bed is subirrigated daily.—B. H. L.]

C. montanum has a single-flowered airy stalk, outer segments dark brown and waved, lip clear rose. *C. occiden-*



E. A. Chapin

Cypripedium pubescens

tale, with a stalk of 25-30 cm., bears oval lanceolate leaves and two or three flowers with dark red-brown wavy segments and small slipper of rosy white. *C. parviflorum*, with stalks of 30-40 cm., is provided with pointed oval, strongly nerved leaves and bears two or three flowers similar to our *calceolus* but smaller. *C. passerinum*, closely resembling *parviflorum* but with more brilliant flowers having outer segments of a greenish or yellowish white and a spherical slipper of a clear rose spotted with purple within, is a rare plant of the Rocky Mountains.

Culture: All the *Cypripediums* except the species for which I have indicated special culture thrive in a turfy and spongy soil in half shade. It is necessary to disturb them as little as possible and to let them establish themselves as they see fit under shrubs or among rhododendrons. It is well, when one buys imported rhizomes, to see that the roots are not dead and black, and that the bud is intact.

The ravishing *Calypso borealis* is a *Cypripedium* in miniature. There are few flowers which have so much aroused the affection of amateurs in hardy orchids. Its sole flower, at the top of a stalk of 5-8 cm., its delicate clear-rose perianth, the charming bright-rose slipper mixed with yellow and velvety in the interior, its single plaited dark-green leaf, its whitish bulb or pseudo-bulb which in the natural state buries itself half way in the moss or the turf and hardly allows its point to come out—everything in this plant is graceful and delicate. One would think it tropical—a sister of the *Laelia* and *Cattleya*—but its habitat is in the marshes of extreme northern Europe and boreal America. Nevertheless, it must be grown under a light protection from cold, because of the white frosts, which easily destroy its leaf and its bud. We succeed well with it in the tourbière, but with a cloche placed at 1 decimeter above the soil.

[NOTE.—M. Correvon inserts here a poem to *Calypso*. As the poetry would be lost in translation I am substituting,

with Miss Coburn's courteous permission, the following bit of graceful fancy.—B. H. L.]

Where the tiny brooklet slowly
Trickles over mosses lowly,
Where the tall columnar beeches
Thickly spread their verdant reaches,
From the black earth lightly rising
Springs a flower of grace surprising.

'Tis a butterfly, whose shaded
Purples in the dusk have faded,
And that droops her wings sedately;
Or a lady, shy and stately,
Standing coy, with head a-tip so—
That's my dainty maid *Calypso*!

Palest purple, faint and tender,
Are the wavy petals slender;
Gold and crimson-flecked the staining
Of the lip's translucent veining;
Birdlike poises on her laden
Taper stem my woodland maiden.

None but eyes of eager lover
Can her hiding place discover;
May by May, unsought and lonely,
She unfolds, displaying only
To the leaning ferns her sweetness
And her delicate completeness.

O you crowd of gaudy, flaunting
Roadside weeds, your beauty vaunting,
Modesty is gone, with blushing,
Out of fashion, but no pushing
Blowzy girl, with hand on hip so,
Can compare with my *Calypso*!

LOUISE HELEN COBURN.

These are the most brilliant, the most elegant of the terrestrial orchids. Among the species with clustered roots there are also many that are grown for their elegance and the beauty of their flowers. *Cephalanthera*, *Epipactis*, *Goodyera*, and *Listera* are equally beautiful, fine, or interesting.

The *Cephalantheras* are plants with leafy stalks, whose flowers form, by their polygonal divisions somewhat similar to each other, a slightly opened helmet. They are exclusively plants of wooded slopes. *C. ensifolia* and *pallens* have white flowers. *C. rubra*, the most attractive of all and one of the most graceful terrestrial orchids, has flowers of a very beautiful rose. All grow in the wooded regions of Europe and are cultivated under lath shade or in woods.

The *Epipactis* are closely related to them. Their flowers are smaller, with outer divisions fairly equal and well spread out. Like the *Cephalantheras*, the *Epipactis* are dwellers in the mountain woods, always on slopes (so far as the sylvan species are concerned). *E. atrorubens*, with flowers somber red-violet; *E. latifolia*, with greenish flowers lightly tinted with rose; and *E. macrophylla*, of a brown-red, are cultivated rather easily, especially if one has slopes to offer them. The two swamp species, *E. gigantea*, of the United States, and *E. palustris*, of our marshes, with yellowish-white flowers spotted with purple, are cultivated very easily in the fen. The first is not very resistant to our winters and requires protection.

The genus *Goodyera* has a subterranean stock creeping underground or in the moss in the form of a thick rhizome. The European species *G. repens* grows in the woods of the whole northern hemisphere, but its stations are somewhat scattered. It is a modest little orchid of 10 to 15 cm. in height, with pure white flowers arranged spirally on a one-sided spike, which we grow successfully in the lath house; its dull dark-green foliage is very attractive. North America has given us three similar species (*G. menziesii*, *pubescens*, and *tessellata*), whose leaves are more or less spotted with white, and Japan, *G. japonica*, which seems to be a form intermediate between *menziesii* and *pubescens*.

The *Listeras* have green flowers, but their opposite leaves, very large in *L. ovata*, which can attain 40 cm. in height, are rather pretty. They are placed about midway of the stem and are tiny in *L. cordata*, which is a minute species of the alpine woods, having a very distinct character. Lath house for *cordata* and woods or fen for *ovata*.

The orchids with tubers are one of the attractive forms of vegetation of our cold or temperate countries. It is more than 40 years ago that I brought them in from my rambles in the country and endeavored to accli-

matize them. Still a child, I attempted to root up the bulbs in full bloom and naturally did not succeed in growing these beautiful capricious plants. I had to endure many sorrows and disappointments before finally learning through experience that it is necessary to transplant the orchids in a dormant state, always after the blooming season and when the stalk is formed and the new tuber is almost mature. We have thus introduced at *Floraire*, in ten years after we established this garden, almost all the *Orchis* and *Ophrys* of our country, and we are endeavoring to introduce the species of the East, of northern Africa, and of southern Europe. And it is a very real and indescribable happiness to see reappearing among us in the autumn (for many of them are developing their leaves already in the late autumn) the beloved *Orchis* and the no less cherished *Ophrys*. In the meadow of which I have spoken (at *Floraire*) there are pretty colonies of the goat orchid, the burnt orchid, the monkey orchid, the military orchid, the male orchid, the helmet orchid, and others. In a dry border we have the curious *Aceras longibracteata* of the Mediterranean olive orchards, which blooms from the month of February, the *Ophrys* which an Oran friend has had the goodness both to send us and to bring us, those which we have collected in the Midi or in our own country, and all live and bloom so well that I find as much pleasure in admiring them there, in captivity with me, as M. Lambeau finds in looking at his marvelous and costly exotics.

A brown, lilac, and black *Serapias*, adorably velvety, has flowered the last year in my Mediterranean border, and more beautifully—I think so, at least—than it has ever done under the sun of Italy. The *Ophrys speculum*, of which his Bulgarian Majesty has been so good as to send me some tubers (King Ferdinand is, as I have written elsewhere, one of the most skilled cultivators of hardy orchids), has spread before my eyes its beautiful

lip of garnet velvet with its delightful little mirror of azure in the center! And what can I say to you of the *Orchis* of our woods, our valleys, and our fields, which find delight and intoxication in my sunshine?

There are many classes among the orchids with tubers and many methods of culture. We have first the great family of orchids of the swamps and moist meadows. Of *Orchis laxiflora*, the most brilliant of all, M. Hétier, an excellent botanist as well as industrialist, has sent me a bushel from the environs of Arbois, writing to me, "Come and see them in our marsh—they bloom there by millions." *O. palustris* resembles it but has a smaller flower. *O. incarnata* and *latifolia* have leaves spotted with brown. All four have flowers of a more or less intense carmine; all have been found elsewhere with white or rose-colored flowers, but I have rarely had the pleasure of seeing these varieties maintain themselves with me. Then there are *Gymnadenia conopsea* and *odoratissima*, both very fragrant, which seek damp places, watery slopes rather than flat ground, but which thrive admirably in my bog. (Except *Orchis laxiflora* and *palustris*, all the marsh orchids have palmate tubers.) The *Liparis*, plants with pseudo-bulbs (like the superb epiphytes of the Tropics), with green flowers, of mean appearance, are also plants of the bogs and marsh. Likewise *Herminium monorchis*, a delicate and pretty cluster of yellowish-white flowers, with a strong formic odor and a slender aspect, which haunts humid slopes in certain Alpine countries. The *Malaxis*, tiny orchids with greenish flowers, belonging to the bogs of the cold countries of our hemisphere, we grow in the tourbière. The varied *Microstylis* of North America are near relatives of *Liparis*, with pseudo-bulbs and greenish-white spikes. All the *Spiranthes*, European or American, have small white flowers, arranged in spiral spikes. Finally, there are two American species of great beauty—the *Arethusa bulbosa*, with a large under-

ground tuber, putting forth in spring a solitary nerved leaf and a long simple branch which bears one or two large fragrant flowers of a beautiful rose-lilac, and the *Calopogon pulchellus*, a pretty little species with a firm small bulb and a stout stalk (20 cm.) bearing in June a loose spike of flowers of a beautiful carmine, with a lip covered with white, yellow, and lilac hairs.

All these species (one could add, among the swamp species, the superb *Orchis foliosa*, of Madeira, which requires protection at Geneva), together with the two *Epipactis* of which I have spoken above, accommodate themselves to the bog (for the more delicate, let us say the tourbière) without requiring other care than to guard against encroachment by plants that are of too vigorous growth.

Next there are the series of orchids of the woods and coppices, which comprise many very pretty species. In the first place are *Platanthera bifolia* and *chlorantha*, which are sought for because of the perfume that their flowers exhale and the charm of their appearance. *Platanthera* or *Orchis* or *Habenaria bifolia* is widely distributed in the forests of central and southern Europe, Siberia, and the Mediterranean regions; its tubers are entire, long oval and pointed at the base; it has two large opposite leaves at the foot of the stalk (40–50 cm.), which carries in May and June a spike of very sweet white flowers. Its sister, of the woods of Europe and the Orient, has green flowers that are slightly fragrant. Both are excellent for shady places and bloom even under fir trees.

Next comes the *Orchis maculata* of Europe, Siberia, and the Orient, with leaves spotted with brown, stalks of 40–60 cm., spike short and crowded, with flowers of a lilac-rose or clear lilac or even a very pure white (June–July). The tuber is palmate, as among the bog species, which proves that it prefers moisture to dry ground. The king of orchids, *Orchis fusca* (the helmet orchid), of stiff form and dominating aspect, with a conical spike of

black, rose, and white flowers supported by a stalk which can attain 70 cm., buries its great tuber at 15-20 cm. and protects it in the jumble of tree roots. *O. fusca* is not properly a sylvan plant, for it loves the light, but it likes the society of low trees and shrubs and remains by preference in the shelter of coppices and hedges. We have a superb specimen with pure-white flowers and another which is a hybrid between this and *O. militaris*. Plant it on the edge of the coppice or in places near trees; it needs a deep soil.

But it is the meadow, the grass plot, or the orchard which suits the greater part of the orchids, and here one can introduce most of the *Ophrys*, those delightful flowers which lack spurs (that is the essential difference between them and the *Orchis*, whose flowers are provided with spurs containing the nectar) and which imitate so well certain insects. In the coolest places in the meadow one will plant the *Orchis cordata* (of Portugal), with greenish-white flowers; *O. coriophora* (of central and southern Europe), a rare and curious species having the odor of a bedbug, with flowers of a livid red and purple; *O. longicornu* (of southern Europe), nearly related to *morio*, *O. longicruris* (of southern Europe), with flowers of purple-lilac and bright rose; *O. maculata*, the male orchid (of the shady places and mountain pastures of all Europe and the Mediterranean region of Asia), a beautiful species of 40-50 cm., with a long spike of bright purple flowers, appearing in May and June, of which we have one plant with pure-white flowers; *O. militaris*, the military orchid, a handsome species of the moist meadows of Europe, Siberia, and the Orient, with stalks of 40-50 cm., a husky spike of flowers with whitish perianth and lip of a beautiful dark rose-purple (May-June); *O. morio*, the monkey orchid (very common in the heavy clay soils of all Europe and Siberia), with a cylindrical few-flowered spike, flowers of a more or less somber purple, rose,

lilac, or pure white (April-May), the easiest to cultivate; *O. papilionacea*, a superb species of the Mediterranean coast, which has large flowers of a rose-scarlet, with outer segments purplish; *O. sambucina*, the elderbush orchid (of the European mountain zone), with flowers canary-yellow or velvety purple or even the color of the dregs of wine and a bilobed angular bulb; *O. spectabilis*, the sole American *Orchis*, with flowers of a dark rose-violet and lip of a handsome white (April-May); *O. tridentata* (central and southern Europe), with flowers of a purplish rose and rosy-lilac lip (February-April).

The following *Ophrys* accommodate themselves equally to the damp meadow, although all the species of this genus prefer sunny slopes and heavy soils: *O. apifera* (bee orchid), *O. arachnites* (hornet orchid), *O. muscifera* (fly orchid). One will plant there also with success the goat orchid (*Himantoglossum-Orchis hircina*), of large dimensions, with a greenish flower having a long lip rolled in a spiral and exhaling a strong odor of goats; and the *Gymnadenia* and *Listera ovata*, of which we have spoken above.

An important group of *Orchis* and all the *Ophrys* require full sun, a turfey slope, a dry grass plot, or even a well-drained sunny border. They are the following species: *Aceras anthropophora* (hanging man orchid), *A. longibracteata*, which it is necessary to protect lightly in winter; *Comparia taurica*, *Ophrys apifera*, *arachnites*, *araneifera* (spider orchid), *atrata*, *bertolinii*, *bombylifera*, *ferrum-equinum*, *fusca*, *lutea*, *muscifera* or *miodes* (fly orchid), *scopolax* (woodcock orchid), *speculum* (mirror orchid), and *tenthredinifera* (sawfly orchid). There are no flowers more popular than those of *Ophrys*, on account of the resemblance of many of them to animals and more especially to certain insects. The causes of this mimicry are not yet well understood, for the fertilizing insects do not eat flies, bees, or hornets.

To these beautiful plants should be added the superb *Serapias* of the Midi



E. A. Chapin

Goodyera pubescens

and the Mediterranean regions, especially the two most beautiful, *S. longipetala* and *S. lingua*, which with us it is necessary to plant in dry sheltered places. The *Orchis* or *Anacamptis pyramidalis* is one of the most brilliant among our native orchids; its short, crowded spike in the form of a pyramidal cone is carried on a stalk of 30-40 cm. and rises, full of life and freshness, from the bosom of the dry meadows and sunny slopes of southern Europe in the months of May and June. It loves a slope, and we grow it in the sunniest sloping part of our meadow.

Besides these plants of the woods, meadows, and fields, there are a whole series of orchids of the mountains, which are acclimatized easily if one takes care to observe their conditions of existence. In the first place is the *Nigritella*, the sweet, curious, delicious vanilla orchid, with small spike of dark garnet, brown-black, exhaling a sweet perfume of vanilla, which is also used at times for flavoring. (The vanilla is the one among orchids that contains the most of vanilline; but that essence or one closely resembling that of the tonka bean is very common in many of our native orchids. On this subject read the appendix to our volume "Orchidées rustiques," p. 231.)

The orchid called *Nigritella angustifolia* or *Orchis nigra* haunts the mountain pastures of Europe and part of Siberia. It has produced with *Gymnadenia odoratissima* a charming hybrid (*N. suaveolens*), with even more delicate perfume, longer spike, and a dark-carmine flower, which is found rather rarely in the Alps and which is produced spontaneously in different parts of our garden "Linnaea." I have found it in many places in the famous Val del Faena, in Bernina. Also in this favored valley, which I regard somewhat as an Eden for the botanist, is found the *Nigritella* with tints unknown elsewhere—clear rose, yellowish, more or less pure carmine, reddish, clear brown, and all the intermediate hues. It is there also that we find

the delightful little fragrant yellow poppy called *Papaver rhaeticum*.

The *Nigritella* is blooming well at Floraire, but not very long, for it has been really acclimatized for only a few years. It is in the lath house that this species of the full sun and the high dry pastures of the great Alps has finally flourished and has bloomed quite as well as on the mountains. It requires peat soil and a dry position. I can not recommend the procedure for all countries, but in our continental climate there is no doubt that this is the necessary treatment.

Also in the lath house I have grown the frog orchid (*Orchis viridis*, *Peristylus viridis*, *Coeloglossum viride*, etc., for it has many other synonyms). This little stranger, which springs from the smooth turf of the alpine pasture to inspect the passerby, who does not see it because it dresses itself in green and drab, is difficult to acclimatize. So also is its neighbor *Gymnadenia* or *Orchis albidia*, which takes refuge where goats abound, under and among the tufts of rhododendrons and huckleberries. This *Gymnadenia* is very tiny in its flower, very delicate, absolutely charming; its little whitish corolla exhales a sweet odor of honey and lifts itself on a slender and crowded spike. *Orchis globosa*, so called because of its great globular tuber, has flowers of pale lilac verging on rose, crowded on a short spike at the top of a stalk of 40-50 cm. It also is a child of the alpine and mountain pastures of Europe, and we grow it under lath shade. The little *Chamaeorchis alpina*, 5-8 cm. high, with flowers on a short greenish spike, is a miniature orchid which it is rare to find even at its natural stations. This is also a plant for the lath house and peat or leaf mold. The superb *Platanthera* or *Habenaria* of our woods and those of North America, which I have described in "Orchidées rustiques," will also find there their place, as well as the rare *Tipularia discolor* of North America (July-August), with small greenish-rose flowers resembling an insect called *Tipula*.

Japan has given us superb large orchids under the name *Bletilla* (*Bletia*) *hyacinthina* and *vaeracunda*. This is a genus with thick bulbs, blooming in the sun, with large nerved leaves and large flowers also, clustered in fours or fives or a beautiful terminal group of a more or less bright rose-amaranth or purple (white in the variety *alba* of *hyacinthina*). Very robust, absolutely hardy, we have had them in the lath house, where they have bloomed rather poorly. In the botanic garden of Geneva they are treated, at least *hyacinthina*, like a common hardy plant and are placed in the rockery of Japanese plants, in half sun, where they thrive marvelously. Finally, it is in the lath house that we grow the curious *Aplectrum hyemale*, which has leaves like *Veratrum* and flowers of brown and green, whose lip is a very clear lilac.

In the picturesque garden the place of the orchid is in the heart of the grass plots, especially if they are on slopes. There is around the great tower of Windsor Castle a delightful and original garden, of which his Majesty, Edward VII, was especially fond and where General Sir Dighton Probyn acclimatizes the mountain plants and especially the rock plants. The children of our mountains live and thrive between the ancient castle walls—*Saxifraga longifolia*, *cuneata*, *corbariensis*, and others. But that which most entrances the visitors to this garden is the very steep slope of the mound on which the central keep stands, well grassed and all adorned with the carmine, amaranth, rose, or white spikes of orchids. By hundreds the *Gymnadenia*, *Orchis morio*, *mascula*, and *maculata*, and *Platanthera* spread there their raiment and seem to rejoice under that more somber sky as under that of Floraire, where they had their birth. In the bog garden there is a marvelous collection of *Cypripediums*. It is very beautiful, very fine, and very delicate. The *Ophrys* do not succeed so well there, because the too

rich and too vigorous turf restrains them.

With regard to *Ophrys*, I should add that many growers of terrestrial orchids prefer to keep them in pots or pans. M. Piédoie, at Nice, has an almost complete collection of them, which grow very well in the climate of the Riviera. The Comte de Paris formerly grew them in the same fashion at his villa in the Midi, and I know many other amateurs who raise them also. The king of the Bulgarians, Ferdinand I, is devoted to this method of acclimatization and has spoken to me with great enthusiasm of the culture of *Ophrydaceae*, which he pursues with much skill at Sofia, at Euxinograde, or on the Isle of Corfu. He has himself sent to me his photograph taken in the setting which he cherishes most—that formed by the wild plants which he has acclimatized. "It is," he says, "a great pleasure to cultivate plants, and the little orchids of the Balkan mountains have for me a very special charm."

Many amateurs have attempted to multiply orchids by means of seeds. Count Buysson introduced at his home many species by scattering in autumn in the places favorable for them the seeds of *Orchis* or *Ophrys*. We have obtained similar results at Floraire. In Germany small gardeners have succeeded in raising hardy orchids from seed in a bed or greenhouse. The Gaertner Zeitung of Erfurt, January 10, 1897, gives an interesting article on this subject. I have given elsewhere many pages on the system adopted in Germany for this operation. It would be too long to repeat them here. (See H. Correvon, *Les orchidées rustiques*, p. 210.) It is possible also (that is, for those who read Norwegian) to consult an interesting brochure on the culture of glacial and arctic plants by N. Moë, head gardener of the botanic garden at Christiania (Oslo) (*Veiledning til Dyrkning af glaciale or arctiske Planter*).

The Development of American Horticultural Literature, Chiefly Between 1800 and 1850

By HAMILTON TRAUB

PART ONE

Phenomena, of whatever nature, happen as the result of definite causes, and while individuals are in fact agents or actors in any drama of industrial development, and their efforts should not be minimized, the fact should be clearly recognized that without an adequate sustaining economic background, individual effort would starve for want of recognition and support. Great achievement in the horticultural industries, in the final analysis, are limited by the effective support extended usually in the form of an actual demand for the products. There were probably embryo Downings even before 1800, but if any such existed they were doomed to die "mute and inglorious." In the light of this, the evolution of the horticultural industries is no longer a thing detached and subject to the caprice of individual effort alone, but becomes a part of the general stream of American civilization. The gradual growth of an indigenous horticultural literature; the formation of horticultural associations; the increased activity in plant introduction and plant breeding; and the advent of governmental agencies in consciously stimulating an industry of vital importance to the welfare of the nation, are all in a measure the result of the increasing economic importance of the horticultural industries as the century advances.

PRINTED HORTICULTURAL WORKS, 1800-1850

In perusing a copy of Coxe's "View of the Cultivation of Fruit Trees" (1817), or Downing's "Fruits and

Fruit Trees of America" (1845), the reader is confronted by a number of questions: What is the origin of the work, and what are its associations? Is it merely the result of the capricious will of an individual? Does the author owe a greater or lesser debt to his predecessors? What is its comparative value as a part of our horticultural literature? These questions and others arise in this connection and require an answer.

From a professional point of view, it is highly desirable that those actively engaged in horticulture should make a conscious evaluation of the work of those who have preceded them. With the passing of the pioneer in American horticulture, the stage is reached when a critical estimate of what has gone before is both possible and desirable. A unified treatment of this subject unfortunately has not been attempted. It is the aim in the following pages to answer as far as possible such questions as naturally arise in connection with the study of our early horticultural literature.

DEPENDENCE PRIMARILY UPON EUROPEAN HORTICULTURAL TREATISES UP TO 1787¹

EUROPEAN HORTICULTURAL WORKS

When the English colonies in America were first planted, the settlers depended wholly upon the mother country for their horticultural traditions,² and current English gardening treatises, at an early date, had limited circulation in the new world. The most popular form of the gardening book in England during colonial times was the garden calendar. Prior to the

¹The subject-matter under this head falls outside the time limits of the period, 1800-1850, but in order to make a complete story, the essential facts are briefly reviewed.

²The American horticulturist, however, is indebted to the native Indian for a part of his horticultural tradition and plant materials.

advent of this institution various other works on the subject had already appeared in the motherland.³ On the whole, however, the influence of British horticultural treatises was not widespread among the masses in the colonies.

John Evelyn's "Kalendrum Hortense" had been published as a portion of the "Sylva" in 1664,⁴ and it was issued separately in 1666. This was followed by other noteworthy garden calendars; Richard Bradley's "Gentleman and Gardener's Kalendar," 1718, Philip Miller's "Gardener's Kalendar," 1732, and John Abercrombie's "Every Man His Own Gardener," 1767. The English works of this nature gave brief statements of what was to be "performed every month," and were as a rule not sufficient in themselves, demanding a garden cyclopedia or dictionary as an adjunct to provide the technical information for carrying out the directions. Philip Miller makes this plain in the preface of his "Gardener's Kalendar":⁵ "In a work of this nature, which is designated to instruct the practitioner at what times of the year each work is to be performed; it can not be expected that the manner of doing those works can be inserted, as that would swell the book greatly beyond the limited size, and render it less portable; and as in the Gardener's Dictionary, there are ample instructions for the raising and management of all sorts of trees, shrubs and plants, with which the English gardens are at present furnished; the curious reader is desired to turn to that, for directions how to perform the several works, in the different branches of Gardening." In the 18th century apparently a change was instituted whereby the necessary

technical details were given in the text. John Abercrombie, in the preface of his *Gardener's Kalendar*,⁶ mentions the advantage of the innovation: "One great advantage which 'Every Man His Own Gardener' has over other books of the same kind is this: that whereas other Gardener's Calendars in a cursory manner only set down what business is necessary to be done every month of the year, without giving sufficient instructions concerning the practical manner of performing it; here the method of proceeding is minutely explained, and directions given in the several branches of gardening, according to the best modern practice."

The information given in such garden calendars was, however, for the English climate and the American gardener was bound to suffer many discouragements in any attempt to be guided by such foreign directions under the differing American climate.

EARLY AGRICULTURAL TREATISES

With the advent of American treatises on general agriculture, however, horticulture received incidental attention as a part of the general field. Any such attention bestowed upon the subject was limited. The "Husbandman's Guide,"⁷ 1710, contained "many excellent Rules for Setting and Planting of Orchards, Gardens and Woods, the Times to Sow Corn, and all other Seeds." This work was followed by the publication of other books on general agriculture, during the century, notably the "Essays upon Field Husbandry," from 1748-1759, by Jared Eliot,⁸ and the "New England Farmer, or Geographical Dictionary" of Samuel Deane in 1790. This latter work was

³Evelyn Cecil, *Gardening in England*, 3d ed., pp. 332-338.

⁴*Ibid.*, p. 343.

⁵Thirteenth ed., London, 1762, pp. ix-x.

⁶Pp. iii-iv, *Amplified Title*; *Every Man His Own Gardener*; *Being a New and Much More Complete Gardener's Calendar and General Dictionary than Any One Hitherto*

Published. Thomas Mawe and John Abercrombie, 17th ed., London, 1803. (While Mawe's name appears on the title page, Abercrombie is the sole author.)

⁷"Printed in Boston 'by John Allen for Eleazer Phillips,'" in small 12 mo., of 107 pages, in four parts. L. H. Bailey, *Stand. Cycl. Hort.* 1915, vol. III, p. 1509.

⁸*Ibid.*, pp. 1509-10.

an encyclopedic treatise and contained short references to horticultural subjects such as "Fruit Trees," "Garden," "Gardening," and also entries for certain of the horticultural crops,—fruits and vegetables.⁹ The work, however, is silent regarding floriculture and landscape gardening.

COLONIAL ALMANACS

A colonial institution inherited from the motherland was the almanac and this undoubtedly exerted some influence in the dissemination of horticultural information during colonial times. According to Bailey,¹⁰ Tobler's Almanac, printed in South Carolina in 1752, included in its pages a "Gardener's Kalender, done by a Lady of this Province and esteemed a good one," and in the Carolina and Georgia Almanac, 1798 and succeeding issues, according to the same authority, appears the "Gardener's Calendar, by Mrs. Logan." Other similar cases could be cited to show that the rôle played by the almanac in spreading horticultural information before 1800, and even later, was probably of considerable importance.

APPEARANCE OF INDIGENOUS TREATISES ON GENERAL HORTICULTURE, 1787-1817

Apparently the first American book on horticulture that has come down to us is Robert Squibb's "Gardener's Calendar for North Carolina and South

Carolina,"¹¹ which appeared in Charleston, S. C., in 1787. It may be that earlier works of like nature appeared, but horticulture was of such slight importance that no systematic efforts were put forth to preserve such insignificant beginnings of a native gardening literature. If any such works did appear they are probably lost to us permanently. The whole question, however, is still in the stage of academic discussion and remains to be settled.¹² Mary G. Lacy, in the "Agricultural History Society Papers,"¹³ ascribes the "Treatise on Gardening, by a citizen of Virginia" as reprinted in the second edition of Gardiner and Hepburn's American Gardener (Georgetown, D. C., 1818) to John Randolph, Jr. (1727-1784), and ventures the theory that it was written between 1760 and 1770. The contention is based upon a chain of circumstantial evidence and the theory may or may not withstand the test of time.

In 1804 appeared "The American Gardener," by John Gardiner and David Hepburn. This work went through several editions and achieved a measure of popularity.¹⁴ The book was constructed upon the calendric model, and considering the time of its appearance "the book was well made; * * * it * * * contains 204 pages of practical directions * * * the first part (100 pages) is devoted to the kitchen garden. The second part (*treats*) chiefly of fruits, flowers, and shrubs (82 pages). This is followed

⁹Samuel Deane, *The New England Farmer; or Georgical Dictionary*, 2d ed., Worcester, 1797.

¹⁰Standard *Cyclopedia of Horticulture*, vol. III, p. 1531. 1915.

¹¹Published again in 1809, 1827, and 1842. The second published work devoted to horticulture to appear in America seems to be an American edition of Marshall's "Introduction to the Knowledge and Practice * * * of Gardening, Boston, 1799. L. H. Bailey, *Stand. Cycl. Hort.* vol. III, p. 1521. William Forsyth's "Treatise on the Culture and Management of Fruit Trees" appeared in an American edition in 1802.

¹²The *Gardener's Calendar*, by Martha Logan, of Charleston, S. C., may have been

published in pamphlet form prior to 1787, but the fact has not been established. L. H. Bailey, *ibid.*, p. 1521.

¹³Vol. II, Washington, D. C. Gov't Print. Off. (1923), pp. 445-454.

¹⁴Wilhelm Miller, *Standard Cyclopedia of Horticulture*, 1915, vol. III, p. 1579, "The name of Gardiner appears first on the title page (it may be inferred), the practical experience of the book is almost wholly Hepburn's. He had had forty years of experience in gardening, half of the time in England and half in America. He was employed by General J. Mason for six years on Mason's Island, Georgetown. He had also been employed by Gov. Mercer."

by a few pages on hops, hot-houses, and green-houses. The second edition (Georgetown, D. C., 1818) contains 348 pages. It includes 'A Treatise on Gardening, by a citizen of Virginia.' This occupies 80 pages."¹⁵

Bernard M'Mahon's "American Gardener's Calendar" was published in 1806. Bailey states that "for fifty years it remained the best American work on general gardening," but this statement will probably need considerable qualification in the light of the facts in the case. The most important of these early calendars is undoubtedly that of M'Mahon. It will be discussed as a typical example of American horticultural literature during the first decade of the century. No critical estimate of these early calendars has as yet appeared and in the present discussion, therefore, a criticism, as far as it is possible with the material available, will be attempted. In the preface of his work M'Mahon states that his writing is based upon "an experience * * * of near thirty years, in Practical Gardening, on a general and extensive scale."¹⁶ The purpose of his work is also clearly stated,—"The neglect in (horticulture) is, no doubt, to be attributed to various causes, among the most prominent of which is the necessity of having reference for information on those subjects, to works published in foreign countries, and adapted to climates, by no means according with ours, either in temperature or course of the seasons, and in numerous instances, differing materially in modes of culture from those rendered necessary here, by the peculiarities of our climates, soils and situations. And however excellent and useful these works are in regions to which they are adapted, they tend to mislead and disappoint the young American horticulturist instead of affording him that correct, judicious and suitable instruction, the happy results of which would

give impulse to his perseverance * * * To obviate this necessity and to contribute my mite to the welfare of my fellow-citizens and to the general improvement of the country I have undertaken this work * * *"

The plan of M'Mahon's work is modeled almost exactly on John Abercrombie's "Every Man His Own Gardener," first published in 1767.¹⁷ Abercrombie's calendar is subdivided into two great divisions, the first being a calendric section and the second a general catalogue of plants. M'Mahon's book is similarly subdivided. The similarity is also so striking with regard to the major subsections, and the minor headings under these. The following comparative tables have been constructed after a page for page comparison of the form and content of the works of Abercrombie and M'Mahon. A study of these tables will throw light upon the adaptive methods used by the early American horticultural writers.

Comparative table showing the similarity in major headings under each month as given in the garden calendars of Abercrombie and M'Mahon.

ABERCROMBIE	M'MAHON
Work to be done in the Kitchen Garden	Work to be done in the Kitchen Garden
The Fruit Garden	The Fruit Garden
	The Orchard
	The Vineyard
	The Nursery
The Pleasure or Flower Garden	The Pleasure or Flower Garden
The Nursery	
The Green-house	The Green-house
The Hot-house	The Hot-house

The major headings under the months of the year are alike with the exception of the illogical subdivision by M'Mahon of the heading "The Fruit Garden" into the following additional headings: "The Fruit Garden" to designate espalier, wall trees, and the small fruits including the fig; "the Orchard" to include the standard fruit

¹⁵Ibid., p. 1579.

¹⁶Bernard M'Mahon, *American Gardener's Calendar*, 1806, p. ii; v.

¹⁷The 17th ed., London, 1803, of Abercrombie's work is used in the comparisons that follow, while the original, 1806, edition of M'Mahon's *Calendar* is used.

trees, and "The Vineyard" to include the out-door culture of the grape.

The following table shows the similarity between the subheadings under the first major heading for the month of January as given in the calendars of Abercrombie and M'Mahon. Subtitles in italics are alike or essentially alike in meaning and form in both columns.

ABERCROMBIE	M'MAHON
<i>Preparation for early crops</i>	<i>Preparation for early crops</i>
	Framing
	Hot-bed Frames and Lights
<i>Early Cucumbers and Melons</i>	<i>Early Cucumbers and Melons</i>
<i>Care of Various Sorts of Lettuces</i>	<i>Care of Various Sorts of Lettuces</i>
<i>Sowing Lettuce</i>	<i>Sowing Lettuce</i>
<i>Forcing Early Asparagus</i>	<i>Forcing Early Asparagus</i>
<i>Sowing Radishes</i>	<i>Mint, Tansey, etc.</i>
<i>Carrots</i>	<i>Small Sallading</i>
<i>Spinach</i>	<i>Cauliflower Plants</i>
<i>Small Sallading</i>	<i>Sowing Cauliflower Seed</i>
<i>Mint, Tansey, etc.</i>	<i>Sowing Cabbage Seed</i>
<i>Parley</i>	<i>Sowing Carrots</i>
<i>Cauliflowers</i>	<i>Sowing Radishes</i>
<i>Plant Out Cabbage plants</i>	<i>Mushrooms</i>
<i>Transplant Cabbages, etc., for seed</i>	<i>Artichokes</i>
<i>Earth Up Celery</i>	<i>Southern States</i>
<i>Endive</i>	
<i>Beans</i>	
<i>Sowing Peas</i>	
<i>Earthing Up Peas and Beans</i>	
<i>Artichokes</i>	
<i>Mushrooms</i>	

In a study of the above table it is apparent that the omissions in the case of M'Mahon's calendar are due to a difference in climate. M'Mahon can not claim any originality as far as the plan of his work is concerned. With regard to the substance of his work, M'Mahon admits that "in writing this treatise, I have had recourse to the best publications, American, English, French and Latin, lest any useful suggestions, or modern improvements in the art, should escape my notice or recollection; still keeping in view, not only the difference in climate, season, and the necessary modes of

culture in foreign countries, but also, in the extensive regions of which the United States are composed."¹⁸ Unfortunately, M'Mahon does not list the authorities consulted, and we are left to speculate what American sources he refers to since only two separate indigenous works of like nature previously published have come down to us.

A page for page comparison reveals that a *very large portion of the text* is taken bodily from Abercrombie's calendar without so much as changing a comma, and without giving due credit to the source. This sin of omission, which is considered a serious offense in our day, was probably not looked upon as a sin of the deadly variety in M'Mahon's time, at least among horticultural writers, and the thought that a hundred years later he would be held to account by a systematic comparison of his work with the sources whence it was drawn undoubtedly never entered into consideration in the composition of the work. As M'Mahon's statement would indicate, Abercrombie's calendar is not the only source from which he largely borrowed, and the further comparison of M'Mahon's work with that of other horticultural writers who preceded him, will probably bring out other striking similarities.

Some one has said that "to know all is to forgive all." An individual should in justice be measured by the yardstick of his time. Only by estimating a person in the light of the ideals of the age in which he lived can we arrive at a satisfactory idea of his true worth. The very fact that his book went apparently unchallenged until recently and remained in demand for a period of more than half a century, is proof sufficient that the sin of plagiarism was not considered in the same light as in the present day. M'Mahon should therefore be judged by the results of his labors. Although he undoubtedly appropriated the work of others with-

¹⁸American Gardener's Calendar, 1806, p. iv.

out giving due credit to the source, he did make a definite attempt to adapt the material, as far as his experience permitted, to the climate of the United States, and this is his chief claim to any recognition as a horticultural writer. The adapted garden calendar is in fact one of the stepping stones in the transition to a truly native horticultural literature. M'Mahon frequently introduces passages of varying length that are undoubtedly the result of actual experiences, and he gives short directions for the "Southern States." It was probably natural that he should draw heavily upon the fund of European horticultural knowledge, for he was a true pioneer in the field of horticulture who, as a political refugee from Ireland, "found American gardening in its infancy, and immediately set himself vigorously to work to introduce a love for flowers and fruit."¹⁹ Although his memory was neglected for many years, a true evaluation of his work will give him his proper place in the evolution of American horticulture which is essentially that of a pioneer.

M'Mahon's work was followed by that of Grant Thorburn's "The Gentleman and Gardener's Calendar"; the second edition, corrected and improved, was published in New York in 1817, and a third edition appeared in 1821. "The Practical American Gardener," purported to have been written "by an old gardener," was published in Baltimore in 1819. In 1823 William Cobbett brought out "The American Gardener." This work went through a number of editions, the last appearing in 1856.

Apparently the next native work on general horticulture was William Prince's "A Short Treatise on Horticulture" which appeared in 1828. In the words of Prince, "The object of this small publication is merely to

give a few brief remarks as to the Culture of Fruit Trees, etc., by throwing together some of the leading rules whose adoption has proved most successful, considering that it would be satisfactory as an accompaniment to the catalogues, and might aid those who are ignorant on the subject—but it is not to be considered as addressed to the connoisseur of fruits, to whom the most of its details must already be familiar."²⁰ The work is a small paper-covered volume of 196 pages, and is built on the topical plan detailing the season of planting, care of nursery stock on arrival at destination, the manner of planting, soil and cultural requirements of "Fruit and Ornamental Trees and Shrubs, Grape Vines, Bulbous Flowers, Green-house Trees and Plants, etc."

Thomas G. Fessenden's "The New American Gardener" was published in Boston in 1828. This small volume was also constructed on the topical plan, all the subject-matter being arranged alphabetically. Fessenden honestly styles himself a compiler whose object was the "collecting and condensing, from various sources, such directions, notices, and observations as to field and garden culture as seemed of most importance in practice." Fessenden also voices the opinion that these precepts may not fit the peculiar climatic conditions in America, but that "useful hints may be gathered from (such) precepts, which if taken in the aggregate it would be the height of absurdity to be guided by."²¹ In composing his "Treatise on Landscape Gardening," A. J. Downing overlooked Fessenden's little volume, for the former states that the "only American work previously published which treats directly of landscape gardening is the American Gardener's Calendar, by Bernard M'Mahon, of Philadelphia."²² Fessenden's book, however, contains

¹⁹William Darlington, Brief Memoir of Bernard M'Mahon, in the American Gardener's Calendar, 11th ed., 1857, p. xi.

²⁰A Short Treatise on Horticulture, 1828, p. 1.

²¹Thomas G. Fessenden, New American Gardener, 1828, p. 10.

²²A. J. Downing, Treatise on Landscape Gardening, 6th ed., 1859, p. 24.

an article on landscape gardening by Andre Parmentier covering several pages.²³

In 1829 appeared a small work of only 96 pages by Thomas Bridgeman entitled, "The Young Gardener's Assistant," and this was gradually expanded in the course of the years, under varying titles, into a bulky volume in three parts: Vegetable Gardening, Flower Gardening, and Fruit Gardening. These parts were also subsequently published separately. This work remained long a popular treatise on general horticulture and the last edition was published in 1872. The reviewer, in the Magazine of Horticulture, in writing of the advances in the construction of horticultural manuals in America, remarks that the work of Bridgeman "is adapted to our climate, and, unlike compilations from English works, the novice is not led into disappointment by following the rules there laid down, as he generally is when following the advice of the latter." With the advent of the mature edition of Bridgeman's "Gardener's Assistant," it would appear that M'Mahon's calendar would lose by a rigid comparison.

Bridgeman, like the Princes and Fessenden, had abandoned the calendric

form and had adopted the topical plan which enabled him "to give, in a condensed form, as much information as is necessary to the cultivation of each kind of vegetable; whereas, had he pursued the course most of his predecessors have, his book would have been considerably larger, and the reader must have been at the trouble of perusing the greater part of it at least twelve times in the course of the year."²⁴ He realized the value and convenience of the monthly calendar, however, and affixed a brief one to each of the divisions of his book to show "at a glance the work necessary to be done in the various departments of gardening in every month of the year."²⁵ With the appearance of Bridgeman's work, the general horticultural manual before 1850 reached its highest development, and any further progress in the same direction belongs to the succeeding periods of American horticultural evolution. Toward the end of the period appeared several works in this department, but these are relatively unimportant: J. F. Lelievre's "Nouveau Jardinier de la Louisiana," New Orleans, 1838, and Walter Elder's "Cottage Garden of America," Philadelphia, 1849.

(To be continued)

A BOOK OR TWO

LILIES

Garden Cinderellas, by Helen Morgenthau Fox, New York, Macmillan Co., 1928. 269 pages. Illustrated.

This book, the author avows, makes no pretense of being a learned or profound treatise. It is written by a gardener for other gardeners and discusses not only the author's experiences in collecting and cultivating the numerous members of the great genus, but her gleaming of information from books and other gardeners who are interested in the family. It is this

background of personal experience and of accurate knowledge of the amateur's problems that makes the book particularly valuable.

It is a great pleasure to find a book in which the discussion of cultivation does not crowd out all other information. Here we have a pleasant discussion of lilies in art and history, an interesting account of the structure of the bulbs, an outline of the diseases and pests that may assail them, suggestions for their use as pot plants and cut flowers, an encyclopedic section with detailed information about the species in cultivation and several final tables and a bibliography.

²³Fessenden, *ibid.*, pp. 184-187.

²⁴Young Gardener's Assistant, 1857, p. vi.

²⁵*Ibid.*, p. vi.

The illustrations are numerous and excellent and with the very readable and informative text make a book which should inspire gardeners to hunt out the neglected lilies and restore them to their rightful places in garden plantings.

TREES

The Care of Ornamental Trees, by C. F. Greeves-Carpenter, New York, The Macmillan Company, 1928. 70 pages, illustrated.

Many gardeners fail to realize that all plants require care of the sort which they give without question to their vegetable gardens. The larger and more permanent the planting, the less likely it is to receive its due share of attention.

The present volume, which is concerned chiefly with the explanation of tree surgery for the amateur, discusses as well the structure of the tree, its growth and life, its care and planting, its feeding, pruning and spraying. There are chapters on cavities and their filling and on various injuries of trees and their treatment.

The book should certainly make clear to the home gardener that his work is by no means completed when he has planted his tree, even if he has planted it conscientiously and well.

THE FARM AND GARDEN LIBRARY

Spring Flowering Bulbs, by Clark L. Thayer, New York, Orange Judd Publishing Co., Inc., 1928. 123 pages, illustrated.

This small volume, like the others of the series, is addressed to the amateur and particularly to the beginner. It is written with an easy enthusiasm which should quickly engage the interest of the readers. There are special chapters devoted to the tulip, hyacinth and narcissus. One regrets that crocus, erythronium and muscari receive such scant notice, for the first and the last of these are of more permanent value to the amateur than

the hyacinth and make far less demand on his garden activity than the tulip. The general chapters on sources, planting and care, diseases and flower shows add value to the book. The illustrations are very attractive.

Hardy Shrubs, by Frank A. Waugh, New York, Orange Judd Publishing Co., Inc., 1928. 124 pages, illustrated.

After the brief chapters on the uses, planting and care of shrubs, pruning, and sources of supply, this book proceeds to the discussion of various shrubs arranged in alphabetic order. The descriptive paragraphs are necessarily brief but for the most part are quite sufficient. There are surprising inclusions and a few regrettable omissions. The barberries are not well covered; cotoneasters have scant mention; the eleagnus useful in the South are not mentioned although other Southern plants are noted; the privets and lilacs are well handled; several important loniceras are missing; kalmia, rhododendron and azalea are adequately discussed; and the familiar roses, spireas, deutzias, mockoranges and viburnums have considerable descriptive text.

Hardy Evergreens, by Frank A. Schrepper, New York, Orange Judd Publishing Co., Inc., 1928. 127 pages, illustrated.

For the beginner no group of cultivated plants offers more confusion than the evergreens. This book should be welcomed by all amateur gardeners, because it will give them a fine general understanding of the plants discussed, their care, and maintenance. There is valuable advice on purchasing, propagation, planting and transplanting, watering and feeding (which are most often neglected by amateurs), insects and diseases, and three excellent chapters on the use of evergreens in planting design. The final portion of the book is devoted to the study of

characters which lead to the recognition of the various species and varieties. This section is simply and well written and should be of the greatest help to the amateur who does not wish always to remain a beginner.

A LITTLE OF EVERYTHING

Home Flower Growing, by Emil C. Volz, New York, The Macmillan Company, 1928. 342 pages, illustrated.

This book covers a very large field and suffers, perhaps, in some sections because so much has been crowded between its pages. It remains, however, a very useful book, especially for the person who does not like to search through several books to find his bit of information.

After brief chapters on The Nature of the Plant, Planning the Flower Garden, Outdoor Flower Growing, and The Care and Maintenance of the Garden, the author proceeds to the main chapters which are essentially those dealing with plant materials.

The first of these is devoted to annuals with general discussion of their needs, detailed discussion of the more important genera and briefer notes on the less common sorts. For the adventurous amateur the latter portion of the chapter is the most interesting. The second chapter is given over to perennials and is much longer and more nearly comprehensive. A chapter on roses follows, which is very brief and extremely conservative. A very indifferent chapter on bulbs follows this. The chapter on Garden Flowers for Special Purposes is equally disappointing as it barely touches upon rock, wild and water gardens. There is a brief but well-illustrated chapter on everlastings which brings this section to a close.

The remainder of the book deals with flowers in the home, either cut or as potted plants. Here again the work is routine but adequate. The plants listed for use in houses are about what we might expect, but it seems most

unlikely that some of the plants listed would exist in the average home unless bought from a commercial grower at flowering time and abandoned soon after. For example, it is most doubtful if *Rhododendron japonicum* or *molle* would do very well in the amateur's house even if he could find them to buy. The paragraph on cacti is regrettably brief and the illustration on page 233 is upside down, which gives a weird effect. The chapter on foliage plants is more satisfactory by far, but the chapter on bulbs is as routine as a trade catalog. The chapters on window boxes and the arrangement of flowers indoors have too much the background of the poorer commercial dealer with their inevitable and hideous wicker and straw braid baskets and containers. Happily there is no effort to be "arty," for most of the arrangements illustrated are bouquets and not studied attempts in the pseudo-Japanese manner, but Figures 105, 106 and 108 leave much to be desired.

One has the unhappy belief that if the writer had not attempted so much in one book, he might have fared better. As it is, in spite of much that is excellent, the book has many barren stretches.

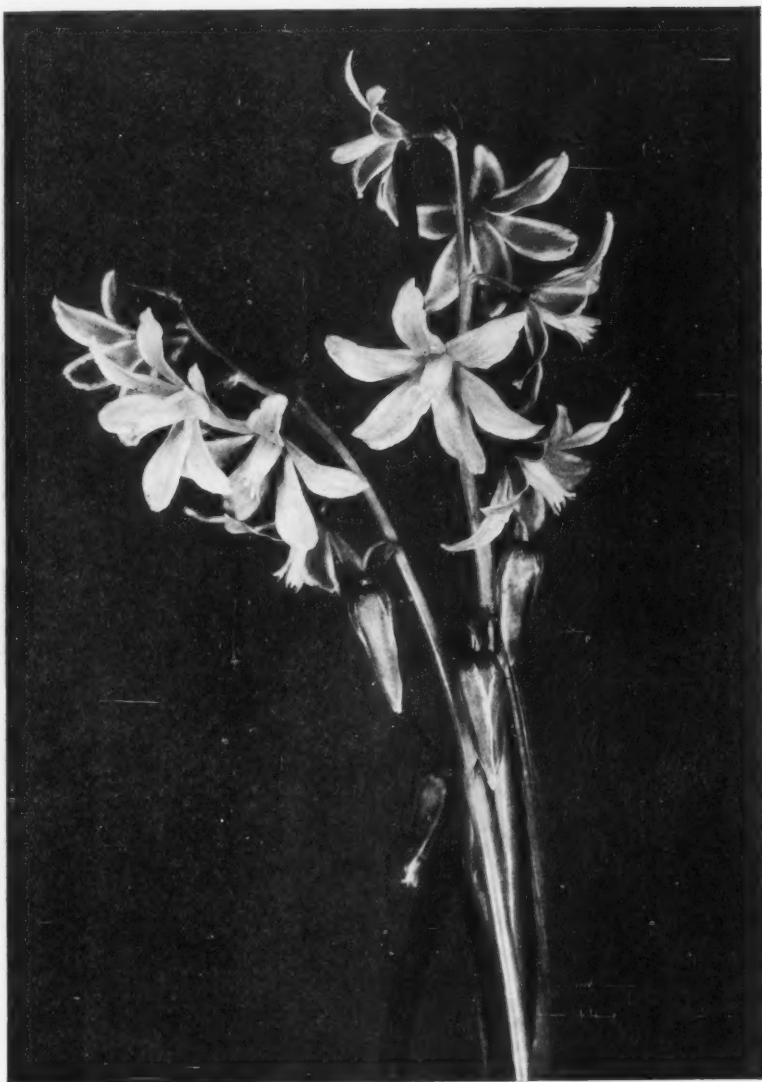
At this time of year one should watch to gather the ripening seed pods of the early spring bulbs. Snowdrops, squills and chionodoxas have lax stems so that the seed pods soon spill their precious contents. Crocus and grape hyacinths grow erect and are easily watched as are the stalks of the early *Hyacinthus azureus*. Home-saved seed sown each year in places safe from hoe and spade soon come to valued flowering.



L. A. Guernsey

Syringa microphylla
(U. S. D. A.—S. P. I.—38829)

[See page 110]



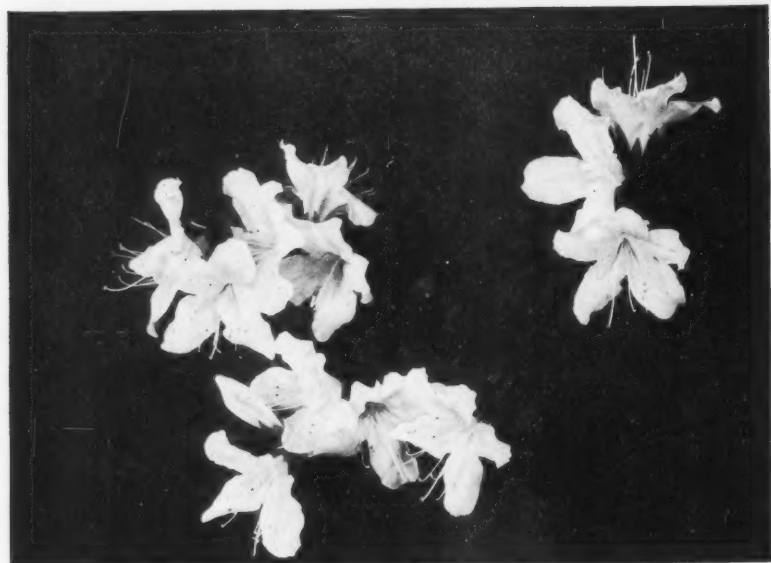
L. A. Guernsey

Ornithogalum nutans

[See page 110]

*L. A. Guernsey**Rhododendron racemosum*

[See page 100]

*L. A. Guernsey**Rhododendron mucronatum*

[See page 110]



L. A. Guerneoy

Buddleia alternifolia
(U. S. D. A.—S. P. I.—62283)

[See page 111]

The Gardener's Pocket-book

In this issue we are beginning what we hope to have as a permanent feature of the magazine, a series of illustrations of various plants which should be called to the attention of gardeners, either because they have been forgotten in the pursuit of novelties or because they are novelties that will soon take their places among our garden favorites. We are largely indebted to one of our directors, Mrs. Fox, for its inauguration at this time.

Rhododendron racemosum Franch.
(Page 108.)

This dwarf Chinese rhododendron is a very variable species but in all cases is a valuable dwarf evergreen shrub that should be useful for rockeries where its fondness for peaty soil and even moisture supply can be gratified. It makes a rather spreading bush of twiggly habit with many small leaves, distinctly whitish be-

neath and bears from its terminal buds and from most of the upper lateral buds crowded clusters of small, rose-tinted flowers. The individual flowers are rather starry and vary from almost pure white through various apple blossom colorings to pure rose color. They are produced in such abundance that they hide the twigs from sight as in the case of some azaleas. The plant is easily raised from seed and comes soon to flowering, so that in time it should be abundant. It should not be planted in dense shade as this causes a leggy and unlovely growth of shoots.

Rhododendron mucronatum G. Don.
(Page 108.)

The lovely azalea which appears in the trade as *Azalea indica alba*, *japonica alba*, and *ledifolia* is one of the best of garden plants at least as far north as Long Island. Like all other azaleas it suffers from cold by the winterkilling of imperfectly matured late summer growths and the killing of new spring growths by late frosts in spring. Its fine white flowers are over three inches across and of glistening lily-like whiteness. There are colored forms, a less lovely, tinted pink and a variety *magnifica* with a deep rose blotch on the upper lobes.

Like other evergreen azaleas, it is easily propagated by summer cuttings of half-ripe wood and less rapidly but no less surely by hardwood cuttings in the greenhouse during winter. Near Washington it seeds sparingly with relatively few seeds in each capsule, but these will produce plants about as rapidly as other species.

Syringa microphylla Diels. (Page 106.)

To most of us, the word lilac suggests little more than the well beloved old *Syringa vulgaris* and its hybrids. This species from China, with its tiny leaves and many panicles of small flowers up and down the ends of the shoots makes a very different garden

effect. The flowers are relatively small with deep pink buds, pinkish white inner surfaces of the lobes and a mild lilac scent. The color mass is not so pure as in the common lilac but the effect is very pleasing, and as its late flowering prolongs the season past the time of the last double hybrids of *vulgaris*, it is most welcome, especially in regions where the earliest lilacs are often caught by late frosts. It will flower in about four years from seed and may be increased in the usual ways of budding and grafting on privet. (S. P. I. 38829.)¹

Ornithogalum nutans L. (Page 107.)

This old-fashioned Star of Bethlehem is less common than the ubiquitous *umbellatum* with its upturned, starry, white flowers. It is also less rampant in its spreading and need not be feared. The great charm of the plant is in the color of the flowers, a silvery gray-green of almost metallic luster. This makes a delightful contrast to the tender pinks, creams and yellows of other spring flowering bulbs. Like other species of *ornithogalum* it makes no particular demands for special soil or cultivation.

Iris persica L. (Page 85.)

This charming bulbous iris is little grown in this country, doubtless because it is not easily obtained. The flowers pictured were from bulbs secured from an old planting in Tennessee and have seemed entirely happy in their Maryland home. They should be treated like *crocus* as the flower is close to the ground and appears before the leaves or stem are much developed. It is probable that some low, creeping, ground cover like *Mazus rugosus* or *Pratia angulata* would protect the flowers from splashing rains and give a better background than the earth itself.

¹Introduction number—Office of Foreign Plant Introduction, U. S. D. A.—Washington, D. C.

Lonicera thibetica Bur. & Franch.

(Page 80.)

This Chinese bush honeysuckle does not produce the wealth of flowers that cover some of the other species and it requires an early spring pruning to remove the tips that have winter-killed to give the plant a tidy appearance. The flowers are produced toward the base of the new lateral shoots and in the U.S.D.A. Plant Introduction Garden at Bell, Maryland, commence to appear in early May and continue intermittently throughout the season. They are of a fair size, a tender pinkish lavender color and have a delicate and delightful scent suggesting that of *Lonicera syringantha*, its near relative. The berries are a clear amber yellow color but are rather hidden by the foliage. (S. P. I. 40690).

Buddleia alternifolia Maxim.

(Page 109.)

According to Dr. Stapf, writing in Curtis Botanical Magazine, this buddleia was first "discovered by Dr. P. J. Piasezki in 1875 in Southern Kansu, * * *" and "was introduced into cultivation in this country (England) in 1914, when Farrer sent seed (F. 100) home."

This plant is probably the hardiest of the buddleias and makes a very different garden effect from all the others. In the U. S. D. A. Plant Introduction Garden at Bell, Maryland, its slender branches are covered with small clusters of rosy lilac flowers during early June. They show the same arching fountain-like grace that characterizes the familiar *Spiraea Van Houttei* so that care should be taken in pruning not to destroy the old flowering wood as one does for the other species that flower on new growth. (S. P. I. 62283).

A CORRECTION.

In Mr. Gersdorff's article "Gladiolus Developments" on page 62 of the last issue, the corrections noted below

should be made to correct the text. The editor is responsible for the error and regrets it.

"Crimson Glow, distinctive, not large, but a tall deep purple" should read—"Crimson Glow, of the color the name implies. Distinctive, not large but a tall deep purple."

"Flora, from Burbank" should read, "Elora, from Burbank very large, a combination of pink, cream and red."

TULIPS

Comments suggested by the article in The National Horticultural Magazine for April, 1928.

"The annual task of planting in weather, often cold and wet in the fall, is another horror." So far as the tulip is concerned, there is no excuse for planting under any such circumstances, the late tulips, at any rate. The ideal time to plant the late tulips is immediately after summer heat and drouth are broken. If planted then, they are gaining strength all fall, as they make root-growth at once. If not planted then, they are losing strength.

The ideal time to dig tulips is after the leaves have turned yellow, and before the stems have died into the ground. This is a very short time, and extensive operations must overstep these limits.

Tulip bulbs must be exposed to the sun as little as possible, as hot sunshine is quickly fatal to them.

As to the cause of "breaking," I am disposed to believe that the Department of Agriculture is correct in ascribing it to disease. One of my reasons for this belief is the very noticeable habit of the inflection to progress along the row in both directions from any bulb that shows a break.

I used to think there was as good a chance for a broken tulip to revert as for it to break; but after segregating large numbers for years, I have never found one reversion.

A broken tulip is an abomination.

I have had breaks of marvelous beauty and have segregated them in hopes of growing a supply. However, the broad bands of beautiful color split up smaller every year until the flower is merely a mess of speckles, and these break up the character lines of the flower, giving neither flower form nor color form to the flowers either in a bouquet or in a planting. There are striped tulips to which this does not apply, but they are stripe forms, and not broken forms. As I grow mostly Darwins, I know from experience that they break with extreme ease. I never saw a break in a tulip of pure yellow color, though Mrs. Moon and Inglescombe Yellow sometimes show splashes of the vivid red of their parentage. These, however, are only incidental, and do not repeat themselves. Some of my most beautiful breaks have been in Marconi, Moralis, Jubilee, and Velvet King. I have had them by the thousands in Clara Butt, and by the hundreds in Farncombe Sanders. I hoped for years to get a pure white one from Farncombe Sanders, and have had them nearly all white the first year, but the second year a larger proportion of red would appear.

Most of the Darwins do not "burrow," or let down "drops." Most of the Cottage tulips do.

Perhaps I am notional, but I do not like any tulip that has "suffusion" colors after those colors have developed. To me they are death colors. For instance, Picotee is white, but, as it ages, a dull, woe-begone pink suffuses through it. Likewise Pride of Haarlem, up to the point of opening, has a color more beautiful than that of Farncombe Sanders, but from then on the deadish purple of the base suffuses through the flower, ruining the color, and making the flower repulsive. So also with all dark-centered Darwin tulips, except those like City of Haarlem, which have the dark center outlined by an ivory-white band.

City of Haarlem is typical of a long series of varieties which also I do not

like except as outdoor flowers. In the sun they are unapproached in splendor by any others, but their color contains a brown which makes them dull by indoor light, more like forms of sealing wax than real flowers.

As to types, Rembrandts, Roses, Violettes, Bybloemen and Bizarres I do not want at all, for reasons already expressed. With the early tulips I have made but little acquaintance. Of the Breeders I know a few varieties, and some of these undoubtedly would have been listed as Darwins if the Breeders had not been the high-priced class at the time of their introduction. Likewise now a big Holland catalogue is listing yellows as Darwins which, as nearly as can be told from the descriptions, are typically Cottage. If I were to see the flowers, I might change my opinion. While there are many poor Darwins, the utmost of refined beauty in the tulip world undoubtedly lies in the Darwin class.

As to "new" varieties, a variety once described as new continues so forever.

Why are Elephant and Venus so high in price? The answer is simple: strong growers, good stems for cutting, and marvelous purity of color, in which last feature they are a distinct achievement. Venus having no purple, Elephant no dirty brown. Though Elephant is a large flower, it is more likely from its color that it gets its name.

There are probably more faultless varieties in yellow than in any other color. Though there is not a more beautiful tulip yellow than Inglescombe Yellow, it is hard to understand why it should be referred to as "The Yellow Darwin," for it is not like a Darwin, nor does it bloom with the Darwins, as it does not come into evidence until even the latest of the Darwins are nearly gone. The yellow tulip that most nearly resembles the Darwins is Bouton d'Or, and with them it blends perfectly and contrasts beautifully.

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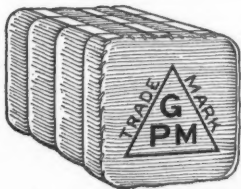
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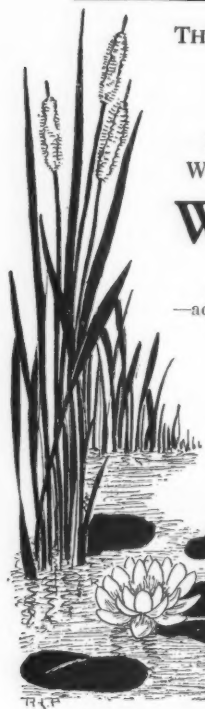
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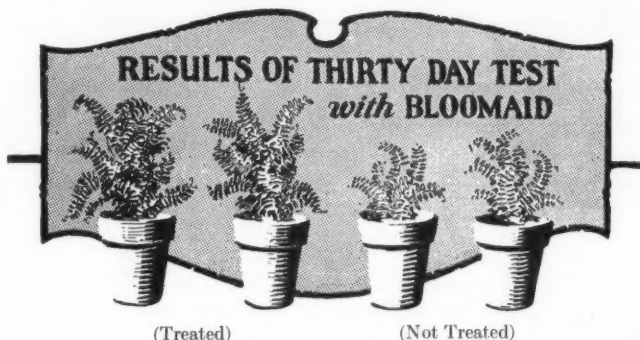
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